

REMARKS

Reconsideration of this application, as amended, is respectfully requested.

In the Official Action, the Examiner rejects claims 1-3, 5, 8-10 and 12 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,616,031 to Wong et al., (hereinafter “Wong”) in view of U.S. Patent No. 5,368,217 to Simmons et al., (hereinafter “Simmons”). Furthermore, the Examiner rejects claims 4, 6, 7, 11, 13 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Wong in view of Simmons and further in view of U.S. Patent No. 5,351,872 to Kobayashi et al., (hereinafter “Kobayashi”).

In response with regard to claims 1-7, Applicants respectfully traverse the Examiner’s rejections under 35 U.S.C. § 103(a) for at least the reasons set forth below. However, independent claim 1 has been amended to clarify its distinguishing features. The amendment to claim 1 is fully supported in the original disclosure. Thus, no new matter has been entered into the disclosure by way of the present amendment to claim 1.

In response to claims 8-14, the same have been canceled thereby rendering the rejections thereof moot.

Independent claim 1 is drawn to a semiconductor bonding apparatus that binds a semiconductor chip to a mounting substrate, with elastic members disposed between the semiconductor chip and the mounting substrate. Such a configuration is shown by way of example in FIG. 3, in which the semiconductor chip is designated with reference numeral 10, the mounting substrate with reference numeral 18 and the elastic members with reference numeral 22. Wong discloses a spring (1, 11); however, the spring is not interposed between the chip and the substrate, as is clear from FIGS. 1 and 3 of Wong. In Wong, the semiconductor die (15) is attached directly to the substrate (no reference numeral indicated).

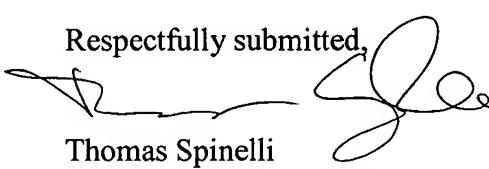
Accordingly, the semiconductor bonding apparatus of claim 1 is clearly different from that disclosed in Wong. Furthermore, in the semiconductor bonding apparatus of claim 1, a pressing force for deforming the elastic members between the semiconductor chip and the mounting substrate is controlled, thereby adjusting the deformation amount of the elastic members, and thus enabling the distance between the semiconductor chip and the mounting substrate to be set to a desired value (see for example, page 15, lines 11-19 of the present application). Such a feature is not disclosed or suggested in Wong.

As discussed above, independent claim 1 has been amended to clarify its distinctive features. Specifically, claim 1 has been amended to positively recite that the elastic member is disposed between the semiconductor chip and the mounting substrate and consequently the same features have been removed from the preamble. Furthermore, claim 1 has been amended to clarify that the driving section controls the pressing force to cause the elastic member to be deformable by a desired amount, whereby the semiconductor chip and the mounting substrate are bonded to each other, while being kept separated from each other by a desired distance. Neither Wong, Simmons nor Kobayashi disclose or suggest such features.

Independent claim 1 is not rendered obvious by the cited references because neither the Wong patent, the Simmons patent nor the Kobayashi patent, whether taken alone or in combination, teach or suggest a semiconductor bonding apparatus having the features discussed above. Accordingly, claim 1 patentably distinguishes over the prior art and is allowable. Claims 2-7, being dependent upon claim 1 are thus allowable therewith (claims 8-14 being canceled). Consequently, the Examiner is respectfully requested to withdraw the rejections of claims 1-14 under 35 U.S.C. § 103(a).

In view of the above, it is respectfully submitted that this application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicant's attorneys would be advantageous to the disposition of this case, the Examiner is requested to telephone the undersigned.

Respectfully submitted,


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